NONVOLATILE MEMORY, VERIFY METHOD THEREFOR, AND SEMICONDUCTOR DEVICE USING THE NONVOLATILE MEMORY

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BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a semiconductor nonvolatile memory. In particular, the present invention relates to an electrically writable and erasable semiconductor nonvolatile memory (also referred to as the "EEPROM" or "electrically erasable and programmable read only memory"). Also, the present invention relates to a semiconductor device which has the semiconductor nonvolatile memory.

It should be noted here that the term "electrically writable and erasable semiconductor nonvolatile memory (EEPROM)" refers to a whole of semiconductor nonvolatile memories that are electrically writable and electrically erasable, and examples thereof include an EEPROM that is capable of performing erasing on a bit-by-bit basis and a flash memory. Also, unless being specified, the terms "nonvolatile memory" and "semiconductor nonvolatile memory" are used as synonyms for the term "EEPROM". Also, the term "semiconductor device" refers to a whole of devices that function by utilizing semiconductor characteristics. Examples of the semiconductor device include a microprocessor, electrooptical devices such as a liquid crystal display device and a light-emitting device, and an electronic equipment in which there is installed a microprocessor or an electrooptical device.

2. Related Background Art

In recent years, an electrically writable and erasable semiconductor nonvolatile memory (EEPROM) (in particular, a flash memory) has drawn attention as a strong candidate for a memory that will replace a magnetic disk or a DRAM. In particular, a so-called multilevel nonvolatile memory, in which each memory element stores multi-state data more than binary data, receives attention as a mass storage memory.